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FACTORS IN OSCAR RATINGS OF SECONDARY LEVEL STUDENT-TEACHERS.

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THIS FACTOR ANALYTIC STUDY OF OSCAR (OBSERVATION SCHEDULE AND RECORDS) SCORES FOR CLASSROOM BEHAVIOR EMPLOYED RATINGS BY SUPERVISING FACULTY MEMBERS OF THE CLASSROOM BEHAVIORS OF 115 STUDENT TEACHERS AND THEIR PUPILS ON THREE OCCASIONS APPROXIMATELY 1 MONTH APART. FIVE FACTORS WHICH COULD BE INTERPRETED AS INDEPENDENT ASPECTS OF TEACHER AND PUPIL CLASSROOM BEHAVIOR WERE ISOLATED--(1) SEAT WORK, TYPICALLY QUIET, (2) AFFECTION, (3) TEACHER NONVERBAL SUPPORT OF LEARNER, (4) TEACHER VERBAL SUPPORT OF LEARNER, AND (5) "TEACHER-TALK-TOTAL," WHICH PLACES EMPHASIS ON PROBLEM-STRUCTURING. FACTOR MEANS ACROSS THE THREE OBSERVATION OCCASIONS SHOWED THAT (1) TEACHERS ASSIGNED GREATER AMOUNTS OF SEAT WORK AS THE QUARTER PROGRESSED AND THAT (2) "TEACHER-TALK-TOTAL" INCREASED FROM THE EARLY TO THE MIDDLE PORTIONS OF THE QUARTER BUT DECLINED TOWARDS THE END, WHILE SEAT WORK CONTINUED TO INCREASE SLOWLY. FACTOR LOADINGS ON THE OSCAR VARIABLES ARE GIVEN. THIS IS AN ABSTRACT OF A PAPER PRESENTED AT THE AMERICAN EDUCATIONAL RESEARCH ASSOCIATION CONVENTION (CHICAGO, 1966). (LC)

# Factors in OScAR Ratings of Secondary Level Student-Teachers

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OScAR ratings were made of classroom behaviors of 115 student-teachers and their pupils on three occasions during Fall, 1964. The methods of observation prescribed by the authors, Medley and Mitzel, (1958) were followed by supervising faculty members of the KSU student-teaching program. Eight of the 13 scores suggested by the OScAR authors were selected for the present analysis, based on previous findings using secondary-school teachers as reported by Bowers, Davis, and Bowers (1962). The data collection was part of a more extensive investigation into characteristics of student-teachers, results of which will be reported elsewhere.

The 8 variables selected were observed on each of three occasions, approximately one month apart, yielding a total of 24 variables for analysis. Inspection of the frequency distributions of the ratings disclosed that almost all the variables were distributed asymmetrically, with modes near the lower end of scale. This prevalent skewness led to the decision to dichotomize each distribution at its median, and carry on the analysis based on phi-coefficients of correlation. The sample size was judged to be too small to support the use of tetrachoric approximations, especially as there was some doubt about the normality of the distribution of the measures in the population. The phi-coefficients of correlation are presented in Table 1.

Using a principal-components program, with unity as the element in the main diagonal of the correlation matrix, six principal components were extracted and considered for rotation to simple-structure positions. Later principal components were inspected for possible use, but the usual criteria indicated that six should be sufficient to explaining the obtained intercorrelations. Rotations were made using the graphic procedure.

The names of the variables, identification numbers in the analysis, and loadings on rotated factors are combined in Table 2. The arrangement of numbers identifying the

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variables indicates two of the three major hypotheses that could be investigated in this study.

H-1: The ratings will merge along the lines of the observations, i.e. three factors will emerge, one for each observation period. This outcome might be expected because of "halo" effect or because the raters could not differentiate sufficiently the types of behavior being observed.

H-2: Several interpretable factors will emerge, based on groupings of behaviors, each approximately orthogonal to the others. If this outcome occurs, one may infer that the dimensionality of the OScAR, the degree to which it spans the repertoire of teacher behavior, is measurable. In this study, the total repertoire is not spanned, because of the selection of only 8 variables noted above. However, these may or may not be consistent across observations, and may or may not merge to form larger composites.

H-3: No interpretable factors will emerge. This outcome might arise due to changes in teacher behavior during the quarter, and/or rater unreliability.

The pattern in the loadings of the rotated factors shows clearly that Hypothesis 2 should be accepted as the one most likely describing the situation observed. The factors may be named as follows:

A. Seatwork, typically quiet.
$D_1$, $D_2$, $P_1$, $P_2$, Q, for all observation times, for teacher and pupil.

B. Affection.
S5, 6, 7, combined for all observation times, plus some relationship to teacher verbalization.

C. Teacher nonverbal support of learner.
K1, all observation times, plus a slight relation to teacher problem structuring, verbal.

D. Teacher verbal support of learner.
K2, all observation times. It is interesting that variable 18, the latest observation, has a strong negative relationship to Factor A.

E. Teacher talk total, with emphasis on problem structuring.
K3, K2 through K6, all observation times. This combination of variables derives in part from experimental dependence as K2-K6 includes K3. However, it is clearly separate from the other dimensions.

F. Not shown, due to its residual nature. No significant loadings.

Inspection of the intercorrelation matrix, Table 1, and the findings just reported, led to the decision that the relations among the measures would be very similar from one observation time to the next. The dimensionality would be the same--the same factors would emerge.

However, emergence of a factor is not a basis for inferring differences or similarities among levels of performance at the different times. Inspection of the means of factors for each observation time disclosed a significant increase ($p<.05$) in Factor A scores from the first to the second observation time, and a further increase, but not significantly, from the second to the third. It appears that teachers assigned greater amounts of seatwork as the quarter progressed. Factor E scores were significantly greater for the second observation that for either the first or third. The mean for the third observation was less than that for the first, but not significantly. It would appear that teacher-total-talk, as well as seatwork (Factor A), increased from the early to middle portions of the quarter, but that teacher-total-talk declined toward the end, while seatwork continued to increase slowly. Other factor means showed no significant trends across observation times.

It is especially of interest to note that seatwork and teacher-total-talk are correlated to a very low, nonpredictive degree, whereas they might be thought to be bipolar, one inhibiting the other. Also of interest is the evidence that differences in degree of affection shown by teachers for students, and conversely, are not predictive of differences in degree of supportive behavior, since Factor B, above, is independent of Factors C and D.

In summary, the dimensionality of a selected subset of the measures available from the OScAR rating scheme was investigated, with the result that five factors could be interpreted as mutually independent aspects of teacher and pupil classroom behavior. Some significant differences in levels of activities of the kinds described by the factors were noted.

## References

Bowers, Norman D. Davis, O. L., Jr., and Bowers, Mary W. "The effectiveness of the Index of Adjustment and Values in predicting classroom behavior," in Martin Katz (Ed.) Nineteenth Yearbook of the National Council on Measurement in Education. Ames, Iowa: NCME, 1962. Pp. 112-120.

Medley, D. M., and Mitzel, H. E. A technique for measuring classroom behavior. Journal of Educational Psychology, 1958. 49, 86-92.

Table 1. Intercorrelations of Selected OScAR Ratings.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | -- | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 34 | -- | | | | | | | | | | | | | | | | | | | | | |
| 3 | 46 | 48 | -- | | | | | | | | | | | | | | | | | | | | |
| 4 | 02 | 01 | -05 | -- | | | | | | | | | | | | | | | | | | | |
| 5 | 17 | 06 | 05 | 02 | -- | | | | | | | | | | | | | | | | | | |
| 6 | 03 | 00 | -05 | 10 | 16 | -- | | | | | | | | | | | | | | | | | |
| 7 | 18 | 23 | 23 | 12 | 20 | 20 | -- | | | | | | | | | | | | | | | | |
| 8 | 18 | 20 | 20 | 12 | 17 | 26 | 72 | -- | | | | | | | | | | | | | | | |
| 9 | 36 | 35 | 36 | 01 | 15 | 06 | 29 | 28 | -- | | | | | | | | | | | | | | |
| 10 | 28 | 26 | 31 | -07 | -02 | 05 | 16 | 10 | 32 | -- | | | | | | | | | | | | | |
| 11 | 26 | 13 | 29 | 10 | -08 | 17 | 08 | 11 | 40 | 35 | -- | | | | | | | | | | | | |
| 12 | -03 | 06 | -01 | 33 | -01 | -03 | 07 | -01 | 04 | -02 | 13 | -- | | | | | | | | | | | |
| 13 | 18 | 17 | 04 | 05 | 55 | 17 | 27 | 13 | 16 | 07 | 10 | 02 | -- | | | | | | | | | | |
| 14 | 03 | 10 | -06 | 06 | 15 | 44 | 01 | 01 | -03 | 01 | 21 | 01 | 25 | -- | | | | | | | | | |
| 15 | 25 | 22 | 15 | 09 | 12 | 16 | 57 | 49 | 39 | 26 | 22 | 04 | 18 | 00 | -- | | | | | | | | |
| 16 | 31 | 31 | 18 | 13 | 02 | 08 | 43 | 39 | 28 | 34 | 24 | 01 | 11 | 06 | 67 | -- | | | | | | | |
| 17 | 32 | 35 | 34 | 20 | 07 | -02 | 30 | 30 | 49 | 21 | 28 | 14 | 06 | 01 | 32 | 36 | -- | | | | | | |
| 18 | 00 | 06 | 18 | -16 | 00 | -23 | 03 | 04 | 08 | 09 | 11 | -02 | -01 | -15 | 13 | 18 | 01 | -- | | | | | |
| 19 | 16 | 23 | 29 | -06 | -09 | 03 | -03 | 07 | 23 | 01 | 37 | 14 | 05 | -00 | 08 | 17 | 28 | 28 | -- | | | | |
| 20 | 01 | -05 | -04 | 48 | 04 | 15 | 03 | 09 | 07 | -04 | 15 | 27 | -08 | 05 | 06 | 12 | 09 | -12 | -06 | -- | | | |
| 21 | 13 | 12 | 05 | 27 | 44 | 29 | 37 | 31 | 21 | 07 | 09 | 22 | 49 | 23 | 29 | 16 | 20 | -16 | -13 | 32 | -- | | |
| 22 | -03 | -13 | -11 | 12 | 13 | 40 | -04 | 06 | -03 | -02 | 08 | 07 | 12 | 46 | -03 | -03 | -02 | -02 | 00 | 10 | 23 | -- | |
| 23 | 33 | 27 | 22 | 10 | 10 | 14 | 50 | 49 | 47 | 31 | 10 | 05 | 18 | -07 | 61 | 59 | 49 | 04 | 16 | 15 | 34 | 04 | -- |
| 24 | 18 | 27 | 20 | 20 | -15 | -02 | 30 | 37 | 42 | 28 | 32 | 22 | -02 | -23 | 49 | 43 | 44 | 26 | 21 | 17 | 13 | -08 | 49 |

Table 2: OScAR variables and factor loadings.

| | Observation | | | | Factors | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | I | II | III | | A | B | C | D | E |
| $D_1$, $D_2$: Pupil reads, studies at seat; writes, manipulates at seat. | 1 | 9 | 17 | 1. | 55 | 01 | 28 | 04 | 18 |
| | | | | 2. | 52 | 08 | 28 | -14 | 26 |
| | | | | 3. | 67 | 00 | 17 | -11 | 21 |
| $P_1$, $P_2$, Q, Teacher: Textbook, workbook; supplementary reading materials, writing. | 2 | 10 | 18 | 4. | -11 | 77 | 05 | 11 | -08 |
| | | | | 5. | 03 | -03 | 80 | 08 | -13 |
| | | | | 6. | -08 | 00 | 13 | 76 | 00 |
| $P_1$, $P_2$, Q, Pupil: Textbook, workbook; supplementary reading materials, writing. | 3 | 11 | 19 | 7. | -10 | 15 | 31 | 26 | 66 |
| | | | | 8. | -10 | 15 | 46 | 16 | 65 |
| | | | | 9. | 53 | 18 | 20 | 10 | 37 |
| S5, 6, 7: Teacher calls pupil dear; teacher shows affection for pupil; pupil shows affection for teacher. | 4 | 12 | 20 | 10. | 41 | -06 | 01 | 16 | 35 |
| | | | | 11. | 59 | 20 | -20 | 40 | 10 |
| | | | | 12. | 11 | 67 | 00 | -02 | -16 |
| | | | | 13. | 15 | -04 | 74 | 19 | -08 |
| K1: Teacher nonverbal support of learner. | 5 | 13 | 21 | 14. | 06 | -10 | 10 | 75 | -27 |
| | | | | 15. | 15 | 16 | 07 | 24 | 69 |
| K2: Teacher verbal support of learner. | 6 | 14 | 22 | 16. | 03 | 16 | 21 | 24 | 76 |
| | | | | 17. | 46 | 38 | 12 | 08 | 25 |
| K3: Teacher problem-structuring verbal. | 7 | 15 | 23 | 18. | 23 | -13 | -12 | -26 | 28 |
| | | | | 19. | 59 | 05 | -22 | 08 | 08 |
| K2 - K6: Teacher talk total; including hostile remarks, directions, neutral comments, problem-structuring, and verbal support. | 8 | 16 | 24 | 20. | -10 | 74 | -02 | 15 | -08 |
| | | | | 21. | -05 | 41 | 66 | 31 | 03 |
| | | | | 22. | -58 | 09 | 19 | 43 | 11 |
| | | | | 23. | 26 | 45 | -12 | -01 | 61 |
| | | | | 24. | 15 | 27 | 24 | 20 | 68 |

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